WEEKLY FORECASTS

El Salto Observatory established in 1925 a weekly forecast service, based upon computations of the solar radiation * * *. The observatory includes a special solar station equipped with a rotating metallic dome, an equatorial Mailhat telescope, a pyrheliometer for measuring solar radiation, astrophysical cameras, etc. Daily observations are made of the sunspots and faculæ, of which a diagram is prepared, attached to which are the photographic evidences; this is sent to the forecast office. Observations of solar radiation are sent daily to the observatory by wire from the Montezuma Observatory of the Smithsonian Institution * * *.

In calculating our weekly forecasts we use Clayton's method, based on the relations which exist between solar phenomena and solar radiation. In addition, Mr. William Hoxmark, in charge of weekly forecasts at the Argentine Meteorological Office wires us daily from Buenos Aires his calculations on the variations of temperature and rainfall in the region of the Plata River. With these data we complete our forecasts.

The weekly forecast is issued to the press of the whole country at 4 p. m. on Saturday and is printed on Sunday and Monday. The results obtained have been most satisfactory, especially in the forecasting of rainy periods and of temperature changes. The percentage of hits varies between 75 and 80.

CONCLUSION

In addition to our daily and weekly forecast services the observatory prepares each month for agricultural interests the general indications as to temperature probabilities deduced from the periodic variations of solar radiation in the 11, 17, and 28 day cycles. These forecasts, which are much less detailed in character than the others, will naturally be further perfected in future.

Moreover, in our work upon "Solar Radiation and Rainfall in the Central Zone of Chile, 1850–1925," we have succeeded in establishing a clear relation between the 11-year period in solar activity and rainfall. This will permit us in future to indicate on a scientific basis the periods of dry years and wet years.

All our forecasts are carefully checked, since we carry on simultaneously both verification and scientific investigation. We construct monthly graphic comparisons of the variations of solar radiation and the different meteorological elements over the country. The conclusions so far arrived at confirm in a gratifying way the results obtained by Clayton and other investigators.

We hope that this new method of weather forecasting, based on short-period variations of solar radiation, marks the initial phase of a new development in the progress of meteorology.—*Translation by B. M. V.*

METEOROLOGICAL SUMMARY FOR SOUTHERN SOUTH AMERICA, SEPTEMBER, 1926

By Sr. J. B. NAVARETTE, Director

[Observatorio del Salto, Santiago, Chile]

During September the atmospheric circulation over the southern region was active, while off the central zone an anticyclonic régime was dominant almost continuously, with highest pressure at the island of Juan Fernandez. Under these conditions the weather in the central zone was dry and cloudy; but, on the contrary, there were rather more frequent rains in the southern region.

On the 1st a depression affected the far south, giving heavy showers as far north as Concepcion. At Valdivia 61 mm. fell. On the 2d and 3d the pressure rose, and then on the 4th a new depression caused rain up to Valdivia and Cautin. Unsettled weather followed until the 6th, relatively low pressure lying off Punta Tumbes and causing rain in the central zone, and rain on the 7th from Coquimbo to Concepcion. On the 9th another depression crossed the southern region, giving showers as far north as Llanquihue. Bad weather lasted in the south until the 15th.

During nearly the whole of the second decade the dominating influence was the center of high pressure at the island of Juan Fernandez, the barometer becoming variable toward the south. On the 18th, 23d, and 26th–30th important depressions crossed the far south, causing bad weather and rains there.—*Transl. B. M. V.*

METEOROLOGICAL SUMMARY FOR BRAZIL, 1926

By FRANCISCO SOUSA, Acting Director

[Directoria de Meteorologia, Rio de Janeiro]

During this month the circulation of the lower atmospheric strata was rather active, for six anticyclones invaded the southern part of the continent, in addition to which the continental depressions of higher latitudes were very active, principally in the last decade, when strong gales occurred in the southern regions and to some extent also in the center of the country.

Rains recorded in the northern zone reached but a scant total; this was 15 mm. below normal. In the central zone rainfall was still further below normal, the deficiency being 35.2 mm. Rainfall in the southern zone was irregular, but came to 44.9 mm. above the normal. In Rio Grand do Sul the total was very high, reaching an average value of 156.4 mm. above normal. By virtue of excessive rains which occurred in the basins of the Gravatahy, Jacuhy, and Guahyba Rivers, the city of Porto Alegre, capital of Rio Grand do Sul, suffered one of the most devastating floods in its history, comparable only to the flood of 1873.

The harvest of cotton in northern Brazil will be small, owing to reduction of the cultivated area. The coffee plantations are in fine condition, and promise excellent yield. The sugar-cane crop promises a good yield, especially in the States of Pernambuco, Rio, Minas Geraes, and Sao Paulo; in the States of Santa Catharina and Sao Paulo the fields are already being prepared for planting.

The weather at Rio was generally unsettled, with light rains which were, however, somewhat heavier in the first two decades. The rainfall record shows a small total. The temperature was a little high for the time of year, the monthly mean being 1.5° C. above normal. The nights were less cool than in the preceding month, the mean minimum being 2.6 above normal. The absolute maximum occurred on the 5th, with 33.3° C.

On the 1st, 19th, 21st, and 22d gales from southerly directions occurred, with maximum velocities varying from 16 to 20 m. p. s.—*Transl. W. W. R. and B. M. V.*